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Geographical Information System

Operationalizing for Use in Domestic Consequence Management

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Whether your organization is involved in emergency planning, response, or mitigation, the use of an effective geographical information system (GIS) that draws upon satellite imagery can greatly enhance all phases of consequence management to support the security of the homeland.

The Joint Task Force Civil Support is a joint military organization that leverages the power of geographical information system to support the Federal Government in planning for and potentially responding to a full range of high consequence management events in the United States.

Joint Task Force Civil Support is a deployable component of U.S. Northern Command and is chartered to rapidly respond with life-saving support in the event of a chemical, biological, radiological, nuclear or high-yield explosive (CBRNE) incident in the continental United States and its territories and possessions. A joint planning augmentation cell was deployed to New Orleans in support of Joint Task Force-Katrina.

Although Joint Task Force Civil Support brings a variety of unique capabilities to the fight, the focus of this article highlights the use of geographical information system to support the full spectrum of the command's CBRNE consequence management mission. Joint Task Force Civil Sup-

port continues to develop and employ a robust set of geographical information system capabilities, such as ArcGIS with ArcPublisher and ArcReader, Spatial Analyst and StreetMap extensions, ArcIMS, Keyhole and other Web-based tools.

These capabilities play a critical role in all aspects of pre-incident planning. As a tool, geographical information system can provide a comprehensive view of an operational environment to Joint Task Force Civil Support prior to a CBRNE event occurring. With the help of the National Geospatial-Intelligence Agency and other Federal Interagency partners, Joint Task Force Civil Support has compiled, organized and warehoused an extensive database of geospatial information for the U.S.

This comprehensive geospatial database includes nationwide information on chemical industry and hazardous material facilities, nuclear power plants, first responder and medical service assets, and other critical infrastructure sectors and key asset categories. With this information, key questions can be addressed such as: the number and types of hospital beds available in an area; the location, types, and quantities of toxic industrial chemicals stored in the area; the location of high-capacity venues; and the location of emergency shelters and emergency operation centers.

This geospatial information can be used to



Rich Burch of the Measurement and Signals Intelligence/Advanced Geospatial Intelligence - Node, formerly the Spectral Resource Operations Center, goes door-to-door in New Orleans with police who are using satellite map overlay products produced by the MASINT Node in support of Joint Task Force - Katrina. *Photo courtesy Measurement and Signals Intelligence/Advanced Geospatial Intelligence - Node*

provide the commander of Joint Task Force Civil Support and his staff with a quick assessment of “what if” scenarios that involve the potential effects of a CBRNE event on a specific U.S. metropolitan area or region. With this understanding and knowledge, the Joint Task Force Civil Support commander and staff are able to quickly observe, orient, decide and act in response to a wide range of potential threats across the homeland. These tools and capabilities allow Joint Task Force Civil Support to rapidly begin its mission planning and provide its higher headquarters, U.S. Northern Command, an initial assessment of a CBRNE event, either before or after the incident.

In the unfortunate event of a CBRNE incident, geographical information system tools can be used to track and visualize an incident or hazard area in order to determine its potential impact on nearby population centers and infrastructure. For example, using ArcGIS, analysts can rapidly display both manmade and natural hazard models along with other relevant data (e.g., population densities, first responder assets, schools, medical facilities and lines of communication) to provide situational awareness of what has occurred, where it happened and what is in the affected area. This initial effects assessment is used to support the military decision making process and gives the commander the critical information he needs to make important operational decisions. It is an iterative process.

Another vital geographical information system capa-

bility employed by Joint Task Force Civil Support is its Consequence Management Interactive Mapping Service. This service is an interactive tool that leverages the power of geographical information system Web technology. It is a user-friendly, Web-based tool that further supports the command’s CBRNE mission.

With its Consequence Management Interactive Mapping Service, Joint Task Force Civil Support is able to deliver dynamic maps and CBRNE Consequence Management-relevant data to its higher headquarters, subordinate units, and Federal Interagency partners via the Web. Users are able to query, analyze and create a customized geospatial view with information based on their preferences. The command’s geographical information system analysts are able to quickly and seamlessly integrate analytical outputs from separate stand-alone ArcGIS systems and then post Consequence Management-relevant information to the Consequence Management Interactive Mapping Service. The Web site enables vital information sharing among other Department of Defense and Federal Consequence Management stakeholders.

If a CBRNE event occurs in the homeland, the geographical information system capabilities resident at Joint Task Force Civil Support will ensure that our Nation’s decision makers have the right information at the right time in the right format to speed the Government’s response to the incident and mitigate its effects.